

ECM-959/959V

SERVICE MANUAL



(ECM-959)

E Model
UK Model
AEP Model

ECM-959/959V

US Model
Canadian Model

ECM-959

SPECIFICATION

General

Type	One-point stereo (employing the Mid-Side system), electret condenser microphone (with back-electret condenser capsules)
Output plug	(ECM-959) Stereo miniplug (ECM-959V) Phone plug $\times 2$
Cord length	(ECM-959) Approx. 2m(6feet 7inches) (ECM-959V) Approx. 40cm(15 $\frac{3}{4}$ inches)
Battery	R6 (size AA) battery
Dimensions	30 \times 175mm(outside diameter \times length) (1 $\frac{3}{16}$ \times 7inches)
Weight	(ECM-959) Approx. 206g(7.3 oz) incl. battery (ECM-959V) Approx. 250g (8.8 oz) incl. battery
Supplied accessories	Wind screen (1) Microphone holder (with PF1 $\frac{1}{2}$ screw) (1) Sony battery SUM-3 (NS) (1) Case (1) (ECM-959) Microphone stand/grip (1) Plug adaptors (unimatch plug) (1 set) Microphone stand screw adaptor SAD-35 (1), SDA-34 (1) (ECM-959V) Microphone mounting adaptor (1)

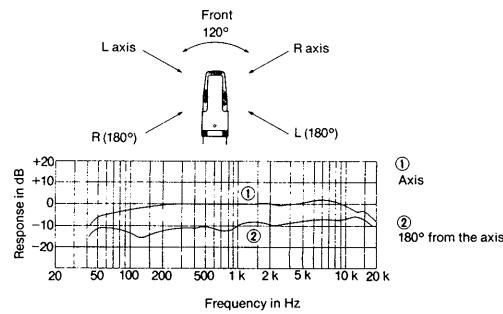
Performance

Frequency response	50 - 18,000 Hz
Directivity	Directive angle: 90° or 120°
Output impedance	550 Ω \pm 20% unbalanced
Output level (at 1,000 Hz, directive angle 120°)	Open circuit voltage: -48 ± 3 dB (0 dB = 1 V/Pa) Effective output level: -51.4 ± 3 dBm (0 dBm = 1mW/Pa) Difference between L and R output level: Less than 3 dB Recommended load impedance: More than 3 kilohms Normal operating voltage: 1.5 V
Power requirements	Minimum operating voltage: Approx. 1.1 V Battery life: Approx. 2,500 hours with Sony battery SUM-3 (NS)
Noise level	Signal-to-noise ratio: More than 69 dB (1,000 Hz, 1 Pa) Inherent noise: Less than 25 dB SPL (0 dB SPL = 2×10^{-5} Pa = 2×10^{-4} μ bar) Wind noise ^{**} : Less than 45dB SPL, using wind screen Induction noise from external magnetic field ^{**} : Less than 10dB SPL (ECM-959)/Less than -4 dB SPL (ECM-959V)
Maximum sound pressure level	More than 117 dB SPL (at 1,000 Hz, 1% distortion)
Dynamic range	More than 92 dB
Operating temperature range	0°C to 60°C (32°F to 140°F)
Storage temperature range	-20°C to 60°C (-4°F to 140°F)

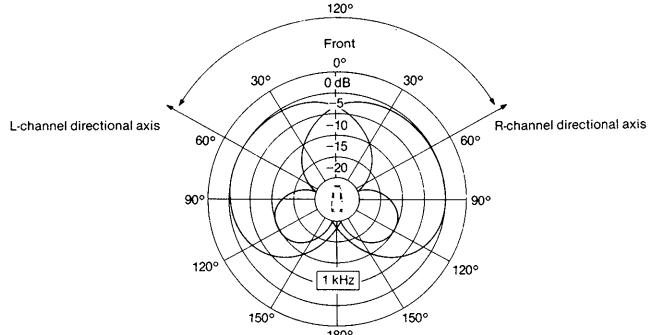
^{*} Wind noise is the value measured by applying a wind velocity of 2 m/sec. (6.6 ft./sec.) from all directions to the microphone. The mean value is taken and converted to the equivalent input sound level.

^{**} The external magnetic field induction noise is measured with the microphone placed in an alternating magnetic field of 50 Hz, 1×10^{-7} tesla (1 milligauss). The maximum noise value is taken and converted to the equivalent input sound level.

Frequency Response

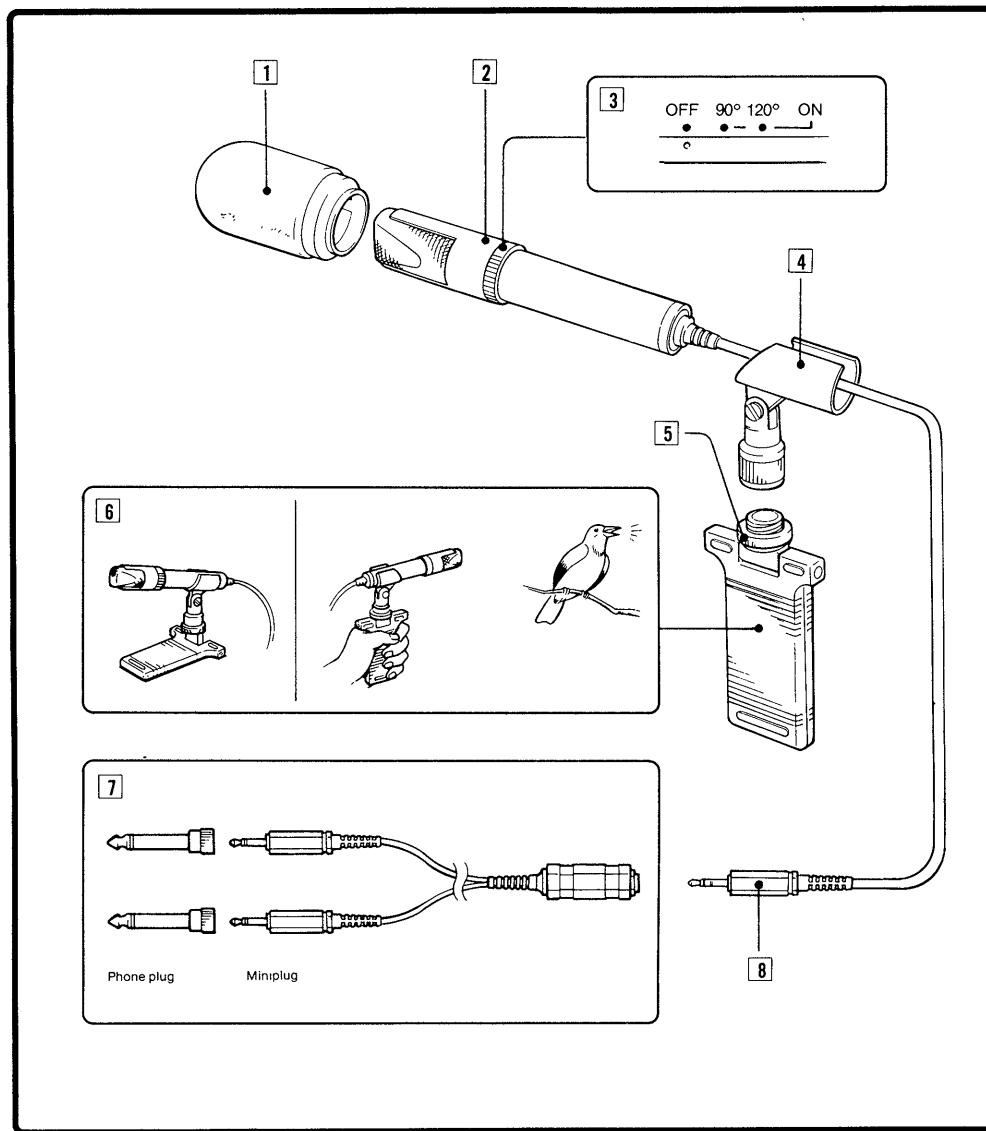


Directivity Characteristics



CONNECTION AND PARTS IDENTIFICATION

ECM-959



1 Wind screen

Reduces wind or breath noises.

2 Battery check indicator

When the power/directive angle switch is moved from OFF to 90°, this indicator will light momentarily, if the battery is in good condition.

3 Power/directive angle switch

OFF: To turn off the power
90°: To pick up the source more clearly than the sound around the source (e.g. to pick up a strings quartet or jazz trio, or bird and insect noises)
120°: To pick up a sound well distributed to the left and right (e.g. to pick up an orchestra, chorus, moving steam locomotive, motor race)

4 Microphone holder

Attach to the supplied microphone stand/grip or to the optional microphone stand.

5 Lock screw

Adjust the angle of the microphone and tighten this screw.

6 Microphone stand/grip

Use to stand the microphone on a desk, or use as a grip of the hand microphone.

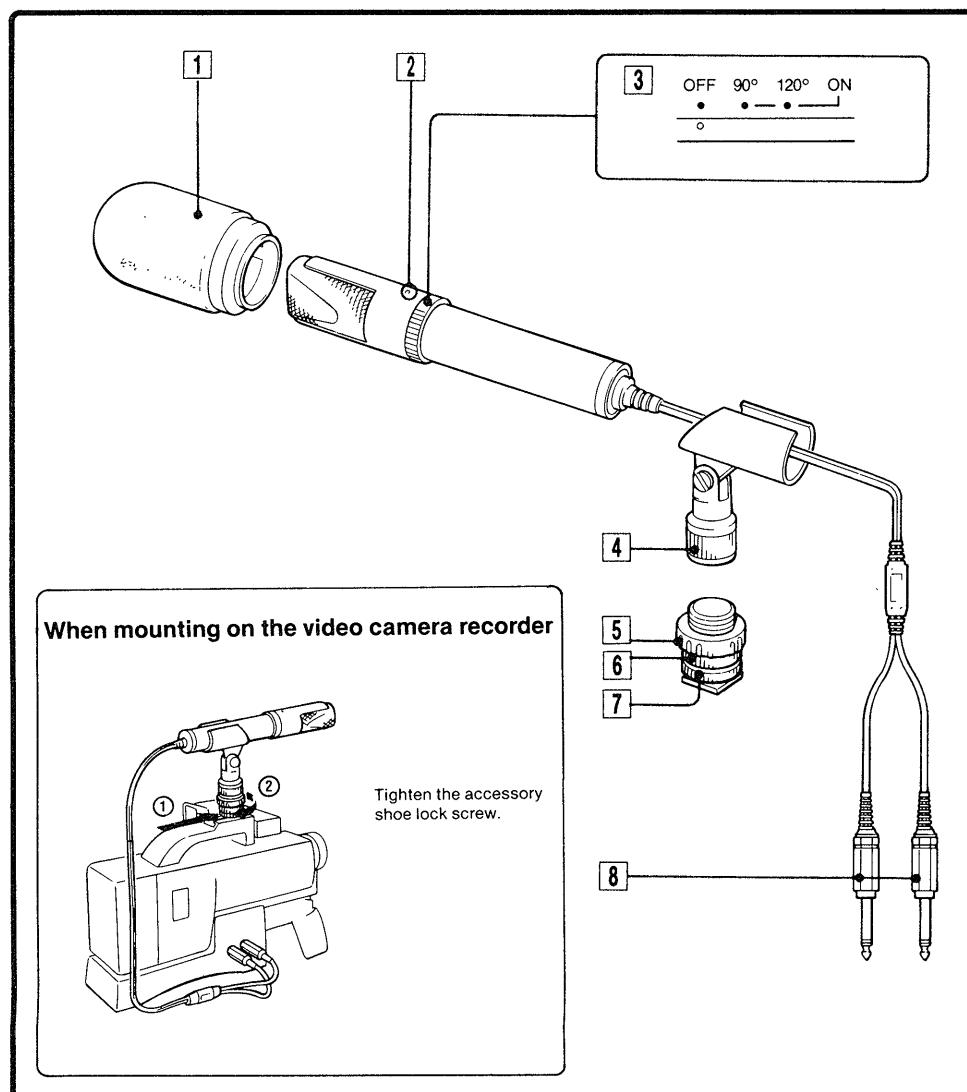
7 Plug adaptors

Use to connect the microphone to R (right) and L (left) microphone jacks of stereo equipment. Connect the red plug to R jack, and the white plug to L jack. When the microphone jacks are minijacks, pull to remove the phone plugs.

8 Stereo miniplug

Connect to the microphone jack of a stereo cassette-corder, etc.

ECM-959V

**1 Wind screen**

Reduces wind or breath noises.

2 Battery check indicator**3 Power/directive angle switch**

OFF: To turn off the power
 90°: To pick up the source more clearly than the sound around the source (e.g. to pick up a strings quartet or jazz trio, or bird and insect noises)
 120°: To pick up a sound well distributed to the left and right (e.g. to pick up an orchestra, chorus, moving steam locomotive, motor race)

4 Microphone holder

Attach to the supplied microphone mounting adaptor.

5 Microphone holder lock screw

Adjust the angle of the microphone and tighten this screw.

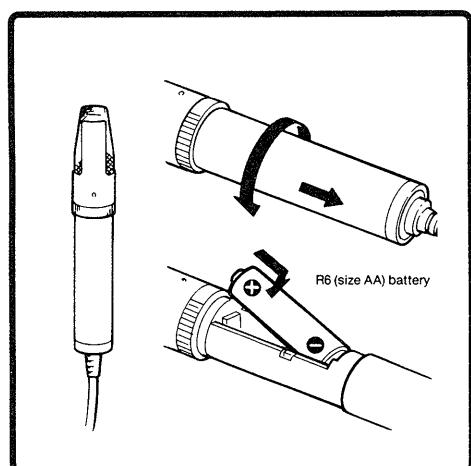
6 Microphone mounting adaptor

Use to mount the microphone on the accessory shoe of a video camera recorder.

7 Accessory shoe lock screw**8 Phone plugs**

Connect to the microphone jacks of a video camera recorder, etc.
 Connect the red plug to R jack, and the white plug to L jack.

BATTERY INSTALLATION

**When to replace the battery**

When the power/directive angle switch is moved from OFF to 90°, the battery check indicator will light momentarily. When the battery becomes weak, the indicator will light dimly or will not light at all. In this case, replace the battery with new one. For battery life, see Specifications.

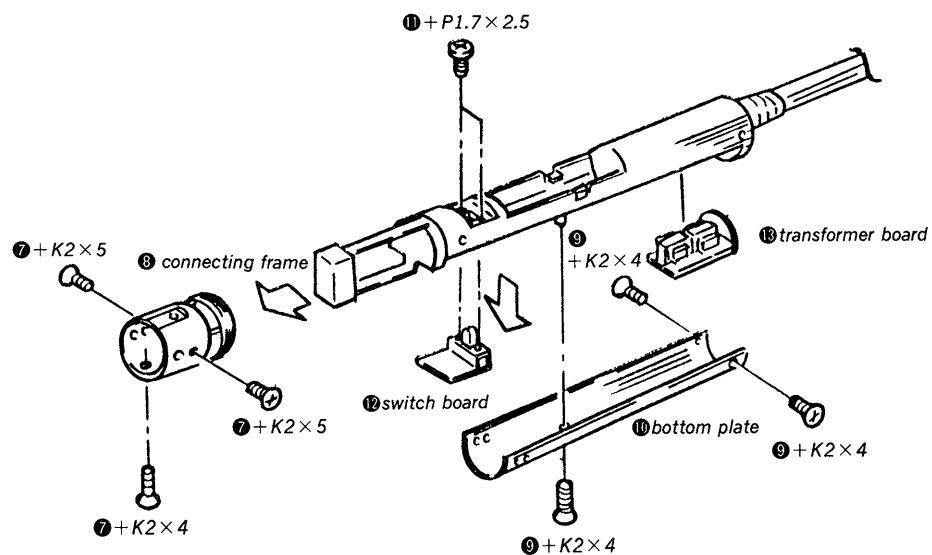
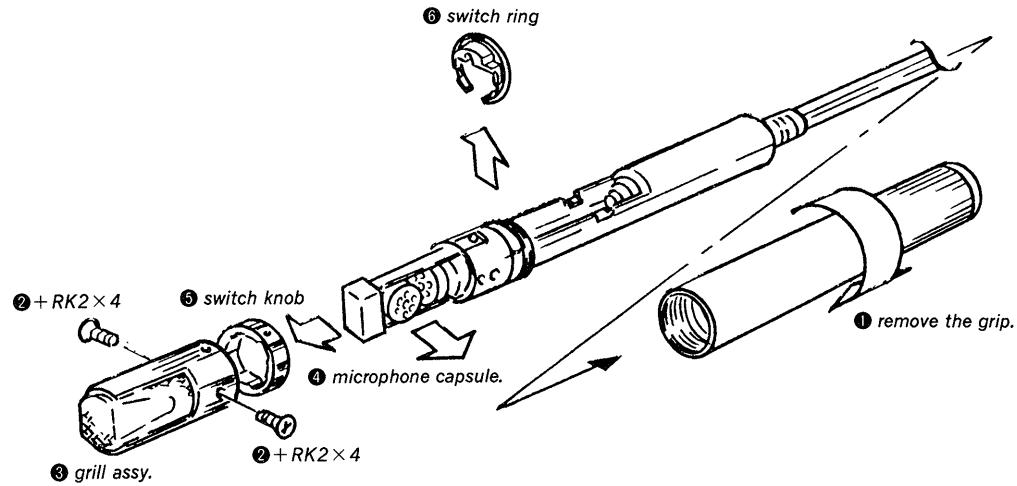
Notes on battery

- Install the battery with correct polarity.
- If the microphone is not to be used for a long time, remove the battery to avoid unit damage caused by battery leakage and corrosion.

DISASSEMBLY

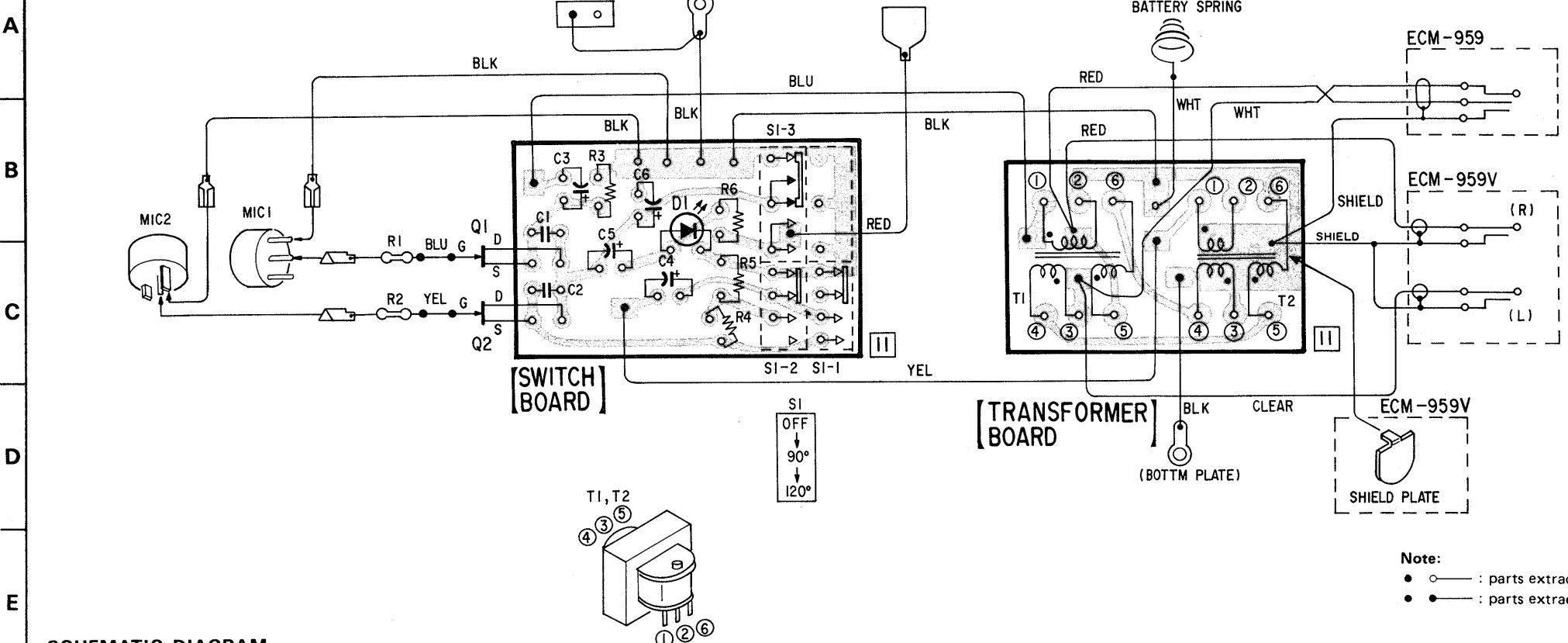
Note: Follow the disassembly procedure in the numerical order given.

- (1) grill assy : ①-③
- (2) microphone capsule : ①-④
- (3) switch board : ①-③, ⑤-⑫
- (4) transformer board : ①-③, ⑤-⑩, ⑬

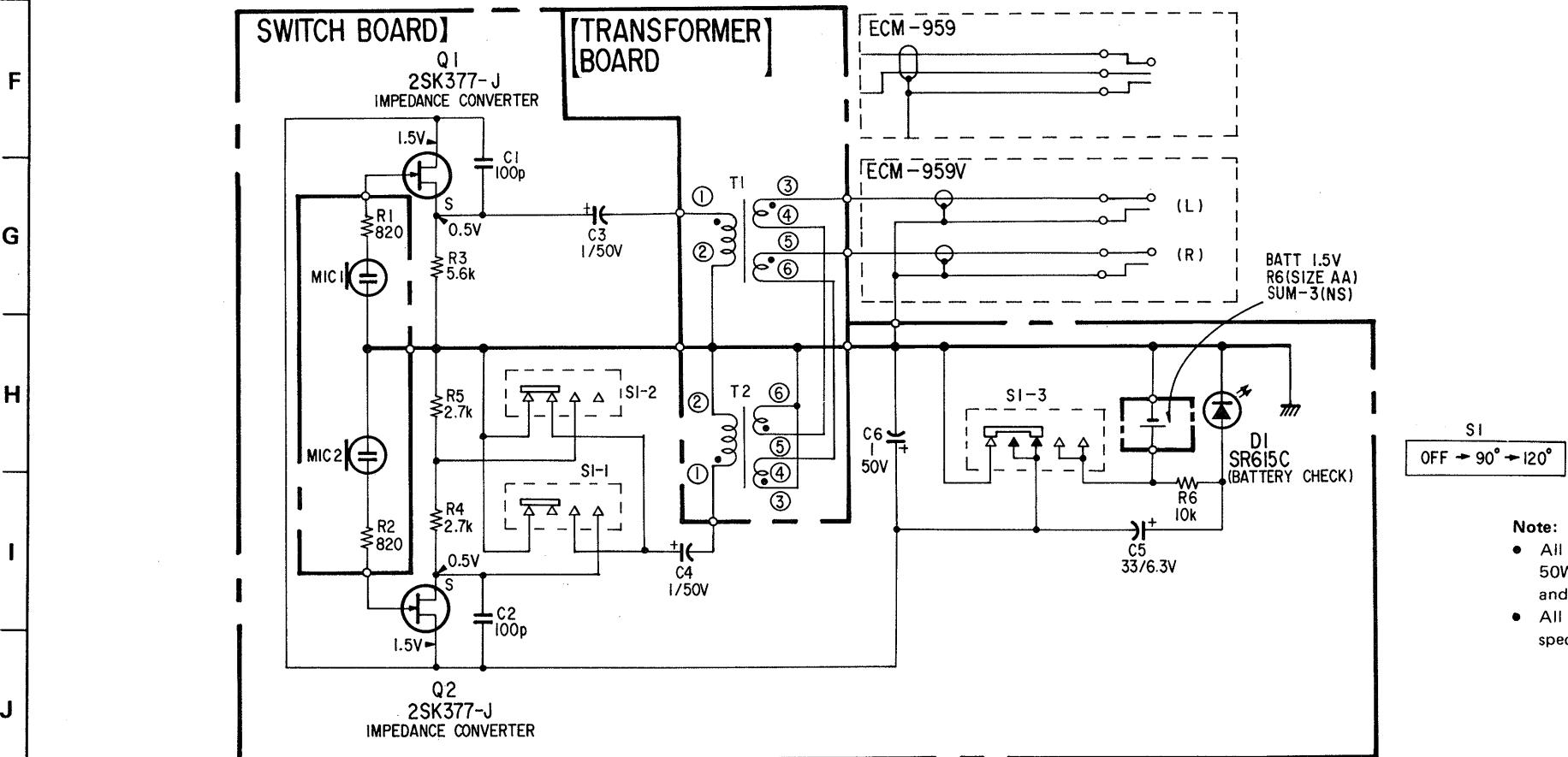


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

MOUNTING DIAGRAM



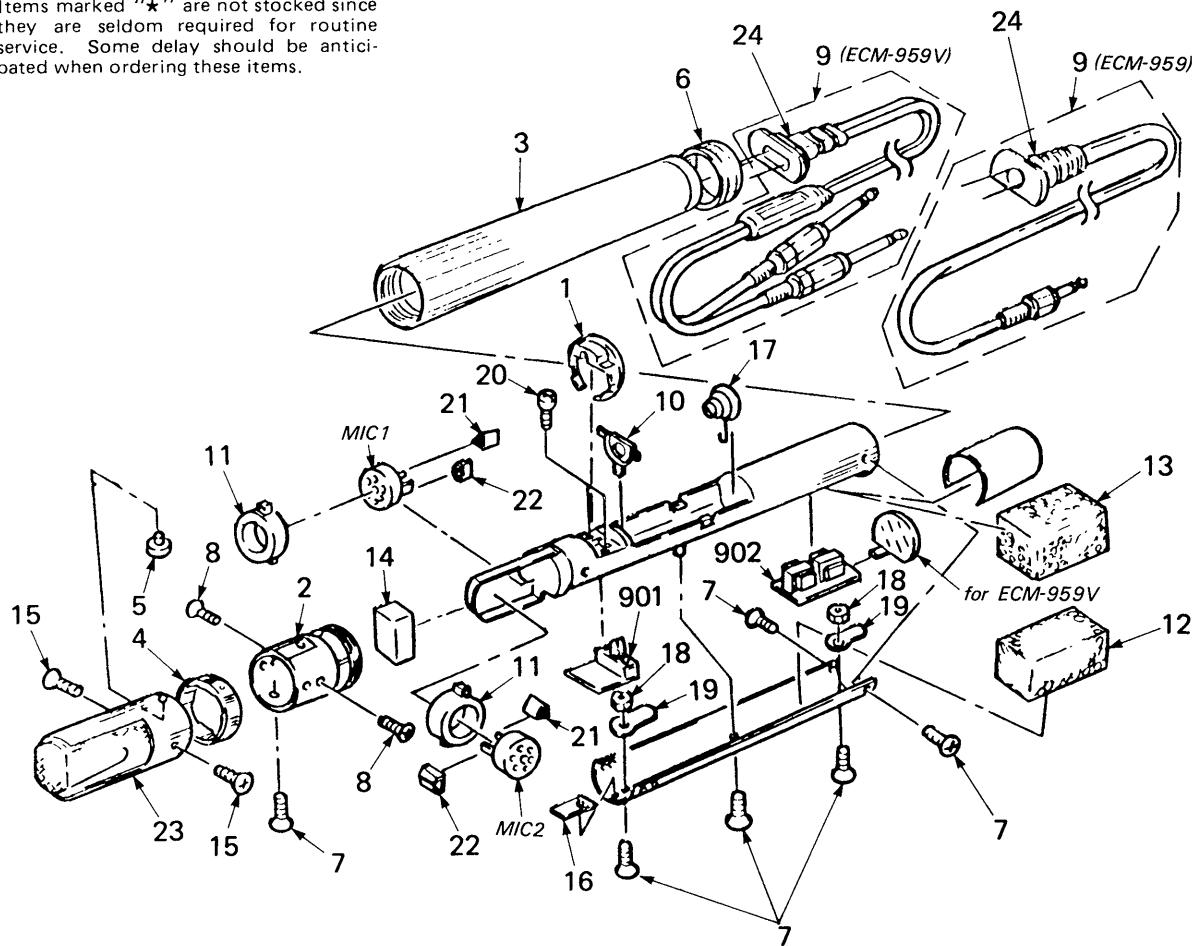
SCHEMATIC DIAGRAM



EXPLODED VIEW AND PARTS LIST

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked “★” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



No.	Part No.	Description	No.	Part No.	Description
1	2-513-914-00	RING, SWITCH	13	2-529-964-01	CUSHION
2	* 2-529-951-02	FRAME (RELAY)	14	2-529-965-01	CUSHION
3	2-529-952-11	(ECM-959)....GRIP	15	7-627-651-08	SCREW, PRECISION +RK 2X4, TYPE 1
	2-529-952-21	(ECM-959V)....GRIP	16	* 2-539-605-01	PLATE, GROUND
4	2-529-954-11	(ECM-959)....KNOB (SWITCH)	17	3-325-414-01	SPRING
	2-529-954-01	(ECM-959V)....KNOB (SWITCH)	18	7-622-205-05	NUT M2 TYPE 2
5	2-529-958-01	COVER, LED	19	7-623-505-01	LUG, 2
6	2-529-979-01	(ECM-959)....RING, MODEL NAME	20	7-627-552-08	SCREW, PRECISION +P 1.7X2.5, TYPE 1
	2-529-989-01	(ECM-959V)....RING, MODEL NAME	21	2-523-713-01	TERMINAL
7	7-627-452-28	SCREW, PRECISION +K 2X4, TYPE 1	22	* 2-532-219-01	TERMINAL, GROUND
8	7-627-452-38	SCREW, PRECISION +K 2X5, TYPE 1	23	X-2529-904-1	(ECM-959)....GRILLE ASSY
	9	1-558-631-21 (ECM-959)....CORD, MIC (DIA. 3.9)		X-2529-945-1	(ECM-959V)....GRILLE ASSY
	1-559-478-21	(ECM-959V)....CORD, MIC (FLAT TYPE)	24	2-529-980-01	(ECM-959)....BUSHING
10	2-520-113-00	BOARD, TERMINAL, POSITIVE		2-529-956-01	(ECM-959V)....BUSHING
11	2-529-957-01	HOLDER, CAPSULE	901	* 1-623-793-11	PC BOARD, SWITCH
12	2-529-963-01	CUSHION	902	* 1-623-794-11	PC BOARD, TRANSFORMER
			MIC1	8-814-177-01	MICROPHONE CU17-02-A
			MIC2	8-814-178-01	MICROPHONE CU17-03-A

ELECTRICAL PARTS LIST

NOTE:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- CAPACITORS:
MF: μ F, PF: $\mu\mu$ F.
- RESISTORS
All resistors are in ohms.
F: nonflammable

ELECTRICAL PARTS

<u>Ref. No</u>	<u>Part No.</u>	<u>Description</u>				
901	*1-623-793-11	PC BOARD, SWITCH				
902	*1-623-794-11	PC BOARD, TRANSFORMER				
C1	1-102-106-00	CERAMIC	100PF	10%	50V	
C2	1-102-106-00	CERAMIC	100PF	10%	50V	
C3	1-124-255-00	ELECT	1MF	20%	50V	
C4	1-124-255-00	ELECT	1MF	20%	50V	
C5	1-124-229-00	ELECT	33MF	20%	6.3V	
C6	1-124-255-00	ELECT	1MF	20%	50V	
D1	8-719-123-70	SR615C				
MIC1	8-814-177-01	MICROPHONE	CU17-02-A			
MIC2	8-814-178-01	MICROPHONE	CU17-03-A			
Q1	8-729-824-18	2SK377-J3				
Q2	8-729-824-18	2SK377-J3				
R1	1-249-416-11	CARBON	820	1/4W	5%	
R2	1-249-416-11	CARBON	820	1/4W	5%	
R3	1-249-426-11	CARBON	5.6K	1/4W	5%	
R4	1-249-422-11	CARBON	2.7K	1/4W	5%	
R5	1-249-422-11	CARBON	2.7K	1/4W	5%	
R6	1-249-429-11	CARBON	10K	1/4W	5%	
S1	1-553-414-00	SWITCH, SLIDE				
T1	1-427-508-00	TRANSFORMER, OUTPUT (MIC)				
T2	1-427-508-00	TRANSFORMER, OUTPUT (MIC)				

ACCESSORY & PACKING MATERIAL

<u>Part No.</u>	<u>Description</u>
X-2529-902-1	HOLDER ASSY, MICROPHONE
X-2529-903-1	SCREEN ASSY, WINDOW
X-2529-946-1	(ECM-959V)...ADAPTOR ASSY
X-2529-947-1	(ECM-959)...GRIP ASSY, MICROPHONE STAND
1-558-630-11	(ECM-959)...ADAPTOR, PLUG
*2-529-995-01	(ECM-959V)...INDIVIDUAL CARTON
*2-529-996-01	(ECM-959V)...CASE, ORNAMENTAL
*2-539-901-01	(ECM-959)...INDIVIDUAL CARTON
*2-539-902-01	(ECM-959)...CASE, ORNAMENTAL
2-599-379-11	(ECM-959)...MANUAL, INSTRUCTION
3-786-014-21	(ECM-959)...MANUAL, INSTRUCTION
2-100-951-04	(ECM-959)...ADAPTER, SCREW, STAND(SAD-34)
2-100-952-00	(ECM-959)...ADAPTER, SCREW, STAND(SAD-35)